

**IN THE CLAIMS:**

1-46. (Canceled)

47. (Currently amended) An isolated nucleic acid molecule encoding a ~~delata-6~~ delta-6 desaturase.

48. (Currently amended) An isolated nucleic acid according to claim 47, wherein said isolated nucleic acid ~~is~~ encodes a plant delta-6 desaturase.

49. (Withdrawn) An isolated nucleic acid according to claim 47, wherein said isolated nucleic acid is a bacterial delta-6 desaturase.

50. (Withdrawn ) An isolated nucleic acid according to claim 47, wherein said isolated nucleic acid is a fungal delta-6 desaturase.

51. (Currently amended) A genetic construct comprising ~~an~~ the isolated nucleic acid according to claim 47.

52. (Original) A vector comprising the genetic construct according to claim 51.

53. (Original) A cell comprising the vector according to claim 52.

54. (Currently amended) A transformed plant comprising the nucleic acid according to claim 47 ~~or the genetic construct according to claim 51.~~

55. (Currently amended) A method of producing a plant with increased GLA comprising transforming a plant cell with a nucleic acid according to claim 47 ~~or the genetic construct according to claim 51~~ and regenerating it said plant from said plant cell.

56. (New) A transformed plant comprising the genetic construct according to claim 51.

57. (New) A method of producing a plant with increased GLA comprising transforming a plant cell with the genetic construct according to claim 51 and regenerating said plant from said plant cell.

58. (New) An isolated nucleic acid molecule according to claim 48, whereby said nucleic acid molecule hybridizes under stringency conditions to the complement of a polynucleotide molecule comprising the nucleotide sequence of SEQ ID NO: 4, and wherein said stringency conditions comprise hybridization to filter-bound DNA in 6X SSC, 1X Denharts solution, 0.05 % sodium pyrophosphate, 100µg/ml denaturated salmon sperm DNA at 60°C, and washing in 4X, 2X, and 1X SET at 60°C.

59. (New) An isolated nucleic acid molecule according to claim 48, whereby said nucleic acid molecule hybridizes under stringency conditions to the complement of a polynucleotide molecule encoding a polypeptide fragment which comprises

- (i) residue 156 to residue 163 of SEQ ID NO: 5; or
- (ii) residue 196 to residue 200 of SEQ ID NO: 5; or
- (iii) residue 371 to residue 377 of SEQ ID NO: 5; or
- (iv) any combination of (i), (ii) and (iii);

and wherein said stringency conditions comprise hybridization to filter-bound DNA in 6X SSC, 1X Denharts solution, 0.05 % sodium pyrophosphate, 100µg/ml denaturated salmon sperm DNA at 60°C, and washing in 4X, 2X, and 1X SET at 60°C.